



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,025	12/02/2003	Baohua Qi	SFST.03USU1	4457

27479 7590 07/07/2004
COCHRAN FREUND & YOUNG LLC
3555 STANFORD ROAD
SUITE 230
FORT COLLINS, CO 80525

EXAMINER

FASTOVSKY, LEONID M

ART UNIT PAPER NUMBER

3742

DATE MAILED: 07/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/727,025

Applicant(s)

QI ET AL.

Examiner

Leonid M Fastovsky

Art Unit

3742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Kishimoto (5,422,462).

Kishimoto teaches a heating apparatus (Fig. 1), a heating element 1 selected from the group consisting of conductive polyaniline fiber, conductive polyaniline yarn comprising conductive polymer fiber (col. 5, lines 22-34), and non-conductive substrate 2 supporting and electrodes 17, 18 for passing a current through the heating element 1 the conductive polyaniline fiber 2, the fabrics are woven fabrics.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 8-10, 12-13 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto in view of Adams (WO 99/24991).

Art Unit: 3742

Kishimoto teaches substantially the claimed invention including a conductive polyaniline fiber inherently having a chosen diameter and chosen length, but does not teach a dopant, conductivity and peak stress. Adams teaches a conductive polymer with dopant and characterized by as-spun conductivity of 90 ± 8 S/cm and as-spun peak stress about 60 MPa (Abstract and page 8, Example 4). It would have been obvious to one having ordinary skill in the art to modify Kishimoto's invention to include a dopant in order that the conductive polyaniline fiber has a conductivity and peak stress to sustain a possible stretch as taught by Adams (page 8, Example 4).

5. Claims 4-7, 21-26 and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto in view of Adams and further in view of Pron et al (2003/0091845).

Kishimoto in view of Adams teaches substantially the claimed invention including an electric power controlling circuit 11, but does not teach a deterioration of a conductivity of the conductive polyaniline fiber at certain temperatures. Pron teaches the variations of reduced conductivity of polyaniline at different temperatures (page 6, [100, 101]). It would have been obvious to one having ordinary skill in the art to modify the invention of Kishimoto in view of Adams in order to determine when and how the conductivity of the conductive polyaniline is reduced at different temperatures as taught by Pron (page 6, [100, 101]) and also at voltage or current and the diameter of the polyaniline as inherently capable of doing so by Kishimoto by an electric power controlling circuit 11.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto in view of Adams and further in view of Mattes et al (2004/0119187).

Art Unit: 3742

Kishimoto in view of Adams teaches substantially the claimed invention, but does not doping and redoping polyaniline fiber. Mattes teaches polyaniline fiber and a method of doping and redoping polyaniline fiber (Abstract). It would have been obvious to one having ordinary skill in the art to modify the invention of Kishimoto and Adams to include doping and redoping polyaniline fiber in order to effect electrical and mechanical properties of of polyaniline fiber as taught by Mattes (page 9, [95]).

7. Claims 14-15, 19-20, 28-29 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto in view of Adams.

Kishimoto teaches substantially the claimed invention, but does not teach fiber stretching capabilities and sulfonic acid. Adams teaches a fiber stretched to between 5 and 8 times its original length (page 7, lines 29-35, page 8, lines 5-10) and sulfonic acid (Abstract, lines 7-8). It would have been obvious to one having ordinary skill in the art to modify Kishimoto's invention to include sulfonic acid to act as a solvating agent (Abstract, lines 4-5) and fiber having stretching capabilities to increase its conductivity as taught by Adams (page 7, lines 27-35, page 8, lines 4-10).

8. Claims 16 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto in view of Adams and further in view of Eiffler (5,188,766).

Kishimoto in view of Adams teaches substantially the claimed invention, but does not teach a molecular weight. Eiffler teaches a polymer having a molecular weight more the 200,000 g/mol (col. 9, lines 26-30). It would have been obvious to one having ordinary skill in the art to include a molecular weight in the invention of Kishimoto in view of

Art Unit: 3742

Adams in order to prepare the polymer by anion exchange and cross-linking as taught by Eiffler (col. 9, lines 26-30).

9. Claims 17-18 and 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kishimoto in view of Han et al (5,225,495) and further in view of Adams.

Kishimoto teaches substantially the claimed invention, but does not teach ethyl acetate and phosphoric acid. Han teaches ethyl acetate (col. 17, lines 65-67) and Adams teaches phosphoric acid (Table, page 4). It would have been obvious to one having ordinary skill in the art to modify Kishimoto's invention in order to include ethyl acetate as a solvent as taught by Han (col. 17, lines 40-45) and phosphoric acid as a solvent as taught by Adams (page 3, lines 16-25).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 6541744 (polyaniline heater), 6548789 (fabric heater).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid M Fastovsky whose telephone number is 703-306-5482. The examiner can normally be reached on M-Th. 8.00 am -6.00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on 703-305-5766. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 3742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Leonid M Fastovsky
Examiner
Art Unit 3742

lmf